Approach for Prevention and Treatment of Chronic Hepatitis C

Monoclonal Antibodies Generated by Genovac and Inserm
Hepatitis C virus (HCV) is a major cause of hepatitis worldwide, currently with 170 million chronic sufferers and future prognoses indicate this number to increase. HCV infects human liver cells and is the leading cause of liver cirrhosis and hepatocellular carcinoma and therefore, a major indication for liver transplantation. Unfortunately, the grafted liver is rapidly re-infected by the virus still present in the patient's body and the disease re-develops. Although an interferon-based therapy is available, it is limited by side effects and resistance in many treated patients. A vaccine or other preventive approaches do not exist. Thus novel strategies for prevention and treatment are urgently needed. Due to the growing number of infected HCV patients resistant to current antiviral therapy, the total therapeutic market is expected to grow from a current 3-5 billion USD / year to 5-10 billion USD over the next 10 years.

A major problem for the development of effective antiviral therapies lays in the biology of the virus. This is a so-called RNA virus which is prone to mutation during the formation of new viruses in the liver cells. Such mutations rapidly occur in patients and lead to new infective forms of the virus that become resistant to therapy. To infect the liver the virus requires so-called receptor proteins or entry factors, present on the surface of the liver cells, to which it attaches and thus gains entry to the cell, where it can start to divide and produce new viruses. New viruses can then infect neighbouring liver cells, leading to spread of the disease.

Genovac and Inserm have successfully generated monoclonal antibodies (i.e., cloned antibody-producing cells, which can be cultivated in cell culture indefinitely) of a given specificity for claudin-1 and two other HCV receptor proteins. All of these block infection of human liver cells in cell culture. Furthermore, they show broad blocking efficiency to all mutant variants of HCV including variants which escape the patient's immune responses.

http://www.genovac.com/
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